

## Description

# COMBINATION UMPIRE COUNTER/BRUSH UNIT

### CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 60/469,569, filed May 9, 2003.

### FIELD OF THE INVENTION

[0002] The present invention relates generally to sports equipment, more specifically to baseball equipment, and still more specifically to devices designed to aid baseball and softball umpires to efficiently monitor the accumulation of balls, strikes, outs, and innings and to clean accumulated dirt from home plate during a game.

### BACKGROUND

[0003] Baseball has long been regarded as the National Pastime in the United States. It is also popular in Canada, Latin America and is growing in popularity throughout the world to the point that baseball, along with softball, has

become an Olympic sport. Both baseball and softball are played by people of all ages.

[0004] Organized baseball and softball leagues provide opportunities to play for people of all ages – from five and six year old children to senior citizens over seventy. Almost all organized leagues utilize umpires to regulate their games. Umpire duties range from preventing pitchers from throwing intentionally at batters, to deciding fair and foul balls, to determining whether baserunners are safe or out during play.

[0005] One of the most important duties of umpires is to call balls and strikes when the pitcher pitches to the batter. There are several counters in the prior art that disclose various devices to record and display accumulated balls and strikes. United States Patent No. 4,072,125 to Spalla discloses a handheld device possessing a gear system that allows half innings to be displayed after the third out in each half inning. United States Patent No. 5,977,480 to Tusso, et al. discloses an illuminated counter. United States Patent No. 5,084,695 discloses a design for a digital umpire counter. United States Patent No. Des. 419,460 discloses a belt-carried digital counter. With the exception of the invention disclosed in the `460 patent, all of these

counters are designed to be hand-held.

[0006] The home plate umpire also has the responsibility of cleaning home plate to give a clear view of home plate to the pitcher, as well as to the umpire himself. The most frequently used device for cleaning home plate is a hand held brush or broom similar to those disclosed in United States Patent No. 5,484,647 to Durst, United States Patent No. 66,611 to Morahan, and United States Patent No. 538,177 to Middaugh, et al. Although it is necessary to use a brush, brushes such as those found in the prior art are difficult to carry comfortably when not in use. If a brush is carried in a belt pouch, the baseballs or softballs routinely stored in belt pouches interfere with easy access to the brush. Brushes stored in pockets are uncomfortable and can interfere with the crouching position assumed by umpires each time they prepare to call a pitch. Because of the likelihood of being hit by a foul ball hit by a batter, a passed ball getting by the catcher, or a wild pitch, home plate umpires usually wear equipment to protect the face, chest and shins. The addition of an uncomfortably stored brush adds distractions that can hinder the umpire as he or she performs his duties.

[0007] Therefore, there is a need to both easily and efficiently

record balls, strikes, outs and innings during a game. There is an additional need to keep a brush or other cleaning device readily available to clean home plate while at the same time allowing the brush to be comfortably stored and preventing the stored brush from interfering with the umpire's other responsibilities.

## **SUMMARY OF THE INVENTION**

- [0008] The present invention broadly comprises a combination counter/brush unit comprising a housing, a brush attached to the housing, and at least one counting means operatively attached to the housing. In another embodiment, the present invention comprises a combination counter/brush unit comprising a housing, a brush in operative association with the housing, a means arranged to at least partly retract and extend the brush into and out of the housing, and at least one counting means operatively attached to the housing.
- [0009] An object of the invention is to provide a combination tool to enable an umpire to monitor accumulating balls, strikes, outs and innings and adequately clean home plate during the course of play.
- [0010] A second object is to make available a tool that can be carried easily during the course of play.

[0011] An additional object is to provide a combination counter/brush tool that can be used by an umpire to record balls, strikes and other information without visually referring to the tool.

## **BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS**

[0012] The nature and mode of the operation of the present invention will now be more fully described in the following detailed description of the invention taken with the accompanying drawing Figures, in which:

[0013] Figure 1 is a top perspective view of the present invention depicting the housing, thumbwheels, display windows and brush retracted into the housing;

[0014] Figure 2 is a bottom perspective view of the present invention depicting a slot defined by the housing and a push button in a rear position protruding through the slot;

[0015] Figure 3 is an exploded top perspective view of the present invention demonstrating the thumbwheels enclosed within the housing and attached to a support plate and also showing a retractor joined to the brush;

[0016] Figure 4 is a bottom section of the present invention taken with the lower housing section removed;

- [0017] Figure 5 is a cut-away cross section of the present invention taken along line 5-5 in Figure 4 demonstrating the support plate holding two thumbwheels of the present invention and the retracted position of the brush between the bottom housing wall and the support plate;
- [0018] Figure 6 is a bottom perspective view of the present invention showing the brush in the extended position and the push button in the forward position;
- [0019] Figure 7 is a bottom view of the present invention taken along line 7-7 of Figure 6 showing the brush in the extended position taken with the lower housing section removed; and,
- [0020] Figure 8 is a cut-away cross section view taken along line 8-8 of Figure 7 showing the brush extended in the operational position and demonstrating the support plate holding two thumbwheels of the present invention.

## **DETAILED DESCRIPTION OF THE INVENTION**

- [0021] At the outset, it should be appreciated that like drawing numbers on different drawing views identify identical structural elements of the invention.
- [0022] While the present invention is described with respect to what is presently considered to be the preferred embodiments, it is understood that the invention is not limited to

the disclosed embodiments. The present invention is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

[0023] Adverting to the drawings, Figure 1 depicts a top perspective view of counter/brush unit 10. Housing 11 is shown comprising lower section 12 and upper section 13. Those skilled in the art will recognize that housing 11 may be a single unitary structure or comprise several different sections. In an alternate embodiment, housing 11 may have one or more curved sides to attain an ergonomic shape to allow counter/brush unit 10 to fit more comfortably in an operator's hand. Housing 11 may be fabricated from any one or combination of durable materials such as metal or suitable hard polymer plastics well known to those skilled in the art.

[0024] Housing 11 defines opening 14. Brush 15 is shown in Figure 1 retracted into housing 11. In a preferred embodiment, brush 15 can be retracted fully into housing 11 which protects the brush from wear and tear caused by the external environment. Brush 15 is preferably fabricated from straw, hair, such as horsehair, or polymers well known in the art. At least one thumbwheel 16 is utilized

as a counter to display various data that are generated during an inning of baseball. Figure 1 shows a preferred embodiment possessing a plurality of thumbwheels 16 extending from the sides of upper section 13 of housing 11. Each thumbwheel 16 possesses indicia 18, typically a series of numbers, one of which is displayed in each of windows 17. Each thumbwheel 16 indicates a different type of datum. In one embodiment, counter/brush unit 10 possesses a pair of thumbwheels 16, one of which possesses numbers 18 indicating strikes and the other possessing numbers 18 indicating balls. In a preferred embodiment, counter/brush unit 10 will possess three thumbwheels 16 each containing indicia 18, for one of strikes, balls and outs. In a more preferred embodiment, counter/brush unit 10 possesses four thumbwheels 16 each containing indicia 18 for one of strikes, balls, outs, and innings. In a preferred embodiment, each window 17 displays one number 18 from one thumbwheel 16. In an alternate embodiment, a number may be displayed on the part of thumbwheel 16 that extends from housing 11, rather than displaying the number through window 17. In still another embodiment, some numbers may be displayed in windows 17 while other numbers are displayed



in the extended portion of thumbwheel 16. As will be shown below, the user changes number 18 shown in a particular window 17 by rotating the appropriate thumbwheel 16 until a new number 18 is displayed in window 17. Thumbwheel 16 may be fabricated from any durable material such as metal or suitable hard polymer plastics well known to those skilled in the art. IN alternate embodiments, liquid crystal displays (LCDs) and light emitting diodes (LEDs) may be used as counting means to display relevant, with control buttons supported on or within housing 11. Person skilled in the art would recognize the power and circuitry requirements, such as battery and output, for delivering power to LCDs and LEDs counters.

[0025] Figure 2 is a bottom perspective view of counter/brush unit 10. Slot 19 is defined by bottom section 12. Retractor 20 can be seen through slot 19 and is connected to push button 21 and brush 15. In a preferred embodiment, push button 21 protrudes through slot 19 to enable the user to easily move retractor 20. As described below, retractor 20 is attached to brush 15 to allow extension and retraction of brush 15 through opening 14. Fasteners 22 are utilized to fasten bottom section 12 to upper section 13 to securely contain all the components of counter/brush unit

10 within housing 11. In an alternative embodiment, push button 21 may be placed in an alternate location on counter/brush unit 10 such as the side of housing 11. Similar to housing 11, retractor 20 may be fabricated from any durable material such as metal or suitable hard polymer plastics well known to those skilled in the art. Alternate embodiments, such as spring powered brush ejectors, may be used to extend brush 15 from housing 11 through opening 14.

[0026] Figure 3 is an exploded top perspective view of one embodiment of counter/brush unit 10. Support plate 26 is shown supporting thumbwheels 16. For clarity, indicia 18 are not shown. Bushings 24 are shown placed into holes 27 defined by thumbwheels 16 and projecting to holes 25 defined by upper section 13. Bushings 24 are secured between support plate 26 and upper section 13 to allow thumbwheels 16 to rotate about bushings 16. It will be obvious to those skilled in the art that other suitable devices, such as rivets, may be used to secure thumbwheels 16 to support plate 26 and upper section 13 to allow their rotary movement. In a preferred embodiment, bushings 24 are sized to extend through holes 25 to create a flush fit with upper section 13. In a more preferred embodi-

ment, bushings 24 also form a flush fit with support plate 26. In an alternative embodiment, support plate 26 or upper section 13 may possess a casing (not shown) for each thumbwheel 16 with walls holding thumbwheel 16 in place within housing 11 while allowing thumbwheels 16 to extend partially from upper section 13. Bushings 24 may be fabricated from any durable material such as metal or suitable hard polymer plastics well known to those skilled in the art.

[0027] Figure 3 also shows thumbwheel stops 28 adjacent to thumbwheels 16. In a preferred embodiment, one thumbwheel stop 28 is adjacent to each one of thumbwheels 16 and is attached to support plate 26. Alternatively, thumbwheel stops 28 may be attached to upper section 13. Thumbwheel stops 28 are operatively arranged to provide resistance points to the rotary movement of thumbwheels 16 while holding them in place within counter/brush unit 10. Indicia 18 (not shown in Figure 3) are positioned on thumbwheels 16 to be displayed in windows 17 when a resistance point is reached. Because a desired number 18 is usually the succeeding number in sequence, by rotating thumbwheel 16 to the next successive resistance point, thumbwheel stops 28 allow rotation of a thumbwheel 16

to desired number 18 without the need to visually check the number actually displayed as the resistance point enables the operator to feel when the next resistance point is reached as the thumbwheel is turned. In one embodiment, notches or grooves (not shown) may be positioned on thumbwheels 16 at specific locations to interact with thumbwheel stops 28 so that one of numbers 18 is displayed in window 17. In a more preferred embodiment, thumbwheel stop 28 or an additional device (not shown) will permit thumbwheel 16 to be rotated in only one direction. Other stop devices are well known in the art. Thumbwheel stops 28 may be fabricated from any durable material such as metal or from suitable hard polymer plastics well known to those skilled in the art.

[0028] Brush 15 is shown attached to retractor 20. In a preferred embodiment, retractor 20 has an offset configuration as shown in Figure 3. The offset shape enables push button 21 to protrude through slot 19 while retractor 20 maintains contact with support plate 26. (See Figure 5). The contact between retractor 20 and support plate 26 creates a slight resistance in the movement of retractor 20 between the retracted and extended (operational) positions of brush 15 for better control and to prevent accidental

movement of retractor 20. In a preferred embodiment, retractor 20 is fabricated from a flexible material that allows push button 21 to bend slightly when it is pressed toward the slot when moving retractor 20. In an alternate embodiment, a spring powered ejector may be used to extend brush 15 out of opening 14. Other methods may also be used to extend and retract brush 15 into and out of housing 11.

[0029] Opening 14 is defined by a wide U-shaped notch in lower section 12. Those skilled in the art will recognize that opening 14 may be formed by a similar notch in upper section 13, a combined gap formed by conjoined openings in both lower section 12 and upper section 13, or an opening created in a unitary (one-piece) housing 11. Fasteners 22 are shown passing through holes 23 to fasten lower section 12 to upper section 13 thereby enclosing the components of counter/brush unit 10 within housing 11. Fasteners may be rivets, nut and bolt assemblies, or other suitable fasteners well known in the art. In a preferred embodiment, fasteners 22 are metal screws joined to threaded holes (not shown) in upper section 13 to allow counter/brush unit 10 to be easily opened while creating a smooth outer surface. Persons skilled in the art will rec-

ognize that fasteners may pass through upper section 13 to join with lower section 12 to enclose the components of counter/brush unit 10.

[0030] Figure 4 is a bottom view of counter/brush unit 10 with lower section 12 removed. Thumbwheels 16 are seen extending from upper section 13 while bushings 24 are seen holding thumbwheels 16 in place on support plate 26. Figure 4 shows brush 15 in a preferred retracted position with brush 15 completely within the perimeter of upper section 13.

[0031] Figure 5 is a cut-away cross section of the present invention taken with the lower housing section removed demonstrating support plate 26 holding two thumbwheels 16 of the present invention. Also seen is the retracted position of brush 15 between the bottom section 12 and support plate 26. Figure 5 depicts a preferred embodiment in which retractor 20 contacts support plate 26 to provide frictional resistance to the movement of retractor 20 as described above. Push button 21 is seen protruding from slot 19.

[0032] Figure 6 is a bottom perspective view of counter/brush unit 10 showing brush 15 extending from opening 14 in the extended position. Push button 21 is shown moved in

slot 19 to the forward position.

[0033] Figure 7 is a bottom view of counter/brush unit 10 with bottom section 12 removed showing brush 15 in the extended position. As can be seen in Figure 7, the attachment of thumbwheels 16 to support plate 26 prevents thumbwheels 16 from interfering with the movement of retractor 20 between the retracted and extended positions. This lack of interference is enhanced by the preferred embodiment possessing the flush fit of bushings 24 with support plate 26 as described above.

[0034] Figure 8 is a cut-away cross section view taken along line 8-8 of Figure 7 showing brush 15 in the extended position and demonstrating support plate 26 holding two thumbwheels 16 of counter/brush unit 10. Push button 21 and retractor 20, attached to push button 21, are shown pushed to a forward position along slot 19. Figure 8 depicts a preferred embodiment in which retractor 20 contacts support plate 26 to provide frictional resistance to the movement of retractor 20 as described above. Push button 21 is seen protruding from slot 19. As mentioned above, the preferred embodiment shown in Figure 8 in which bushings 24 (not shown) are flush-mounted to support plate 26 enables the smooth movement along slot

19 of retractor 20 and brush 15.

[0035] The counting component of counter/brush unit 10 is enclosed by upper section 13 and support plate 26. As discussed above, to change one of numbers 18 in a particular window 17, the user rotates that particular thumbwheel 16 until the desired number is displayed in window 17. In a preferred embodiment, thumbwheel stop 28 increases resistance to the rotation of thumbwheel 16 at specific points in the rotation. The increased resistance allows a user to determine that the next number in sequence is aligned in display window 17 without the need to visually check the window. This allows the user to monitor balls, strikes and outs within each half inning while still observing the field of play. In a more preferred embodiment, a fourth thumbwheel 16 can be used to monitor innings played.

[0036] Retractor 20 can be accessed directly by the user through slot 19 to retract or extend brush 15 into or out of housing 11. In preferred embodiment, push button 21 is used to move brush 15. In a more preferred embodiment, push button 21 possesses a degree of flexibility to enable the user to press down slightly on push button 21 to provide a more lateral force to retractor 20 when moving brush 15



into or out of housing 11.

[0037] Thus it is seen that the objects of the invention are efficiently obtained, although changes and modifications to the invention should be readily apparent to those having ordinary skill in the art, which changes would not depart from the spirit and scope of the invention as claimed.